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ABSTRACT

Past research and experience have documented considerable variation in what is learned and applied in staff inservice efforts, even for participants in the same workshop. For a study which set out to explain such variation, pre- and post-workshop questionnaires were completed by 349 staff (three-fourths of whom were teachers) who participated in 36 teacher-initiated, inservice projects. Participants' ratings of five inservice outcomes were regressed on, and correlated with, their background characteristics, their psychological and professional traits, their school and community characteristics, their school climate, and features of their workshops. All variables combined account for 85 percent of the variance in the inservice outcome measures. Approximately half of this variance is accounted for by the staff and school characteristics, and the remaining half by the climate and workshop features. These results indicate that complex interactions of many staff, contextual, and workshop factors affect the outcomes of staff inservice. Many of these factors can be influenced by workshop designers. (Author/JD)

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Staff, School, and Workshop Influences on Knowledge Acquisition, Use, and Impact from Staff Inservice Efforts

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Running head: Knowledge Use

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Abstract

Past research and experience have documented considerable variation in what is learned and applied in staff inservice efforts, even for participants in the same workshop. In this study, which set out to explain such variation, pre- and post-workshop questionnaires were completed by 349 staff (3/4 teachers) who participated in 36 teacher-initiated, inservice projects. Participants' ratings of five inservice outcomes were regressed on, and correlated with, their background characteristics, their psychological and professional traits, their school and community characteristics, their school climate, and features of their workshops. All variables combined account for 85% of the variance in the inservice outcome measures. Approximately half of this variance is accounted for by the staff and school characteristics, and the remaining half by the climate and workshop features. These results indicate that complex interactions of many staff, contextual, and workshop factors affect the outcomes of staff inservice. Many of these factors can be influenced by workshop designers.

Staff, School, and Workshop Influences on Knowledge Acquisition, Use, and Impact from Staff Inservice Efforts

Introduction

Staff inservice training in education has assumed increasing importance in the past decade, and is especially critical in the present and immediate future. For example:

- continually declining student achievement levels require upgrading of standards, curriculum, and instruction;
- mandated programs such as special education, desegration, and basic skills require staff training for effective implementation;
- new technologies, such as computers and other forms of automation, are being tried by schools, in part to stimulate students' interest and in part to prepare them for the marketplace; school personnel must be equipped to manage the use of these technologies;
- budget cuts and personnel reductions have produced an older staff, many of whom require updated training or retraining to teach newly assigned or changing subjects.

Although the need for staff inservice has increased, research on effective practice fails to explain why much inservice work has mixed outcomes (Campbell, 1981; Holly, 1982). A review of published evaluations and research on inservice training indicates wide variation in participants' assessments of the need and usefulness of many of the training experiences provided (Cruickshank, et al., 1979; Joyce and Showers, 1980). After completing the same workshop, some participants will rate it as necessary and highly useful, while others assess it as unnecessary and "a waste of time."

The planners of inservice training often employ four strategies to reduce such variation. First, they conduct needs assessments to select inservice topics of greatest concern to potential participants. Second, they structure the inservice experience and select the instructor carefully. Third, they make participation voluntary rather than mandatory, to capitalize on the interest and motivation of self-selected members. Fourth, they enable participants to design and control their own workshop, in part or whole. These strategies for providing successful inservice are also combined in various ways.

The use of these strategies is, in fact, supported by very little research on the factors and conditions which affect inservice outcomes. What little research there is focuses on characteristics of the participants and of the inservice experience itself. In the current study we examine these factors, but we also report their interaction with classroom, school, district, and community contextual factors.

We include aspects of the larger organizational context because we hypothesize that what is learned and applied from inservice work by participants is need- and context-specific. For example, participants typically vary according to the strength of their individual psychological needs (e.g., for achievement and/or power), and with respect to the demands of the specific jobs they hold. They also differ in how alterable and supportive their job situations are. Thus, participants in situations that are high on such factors are likely to learn and to apply more than those with less intense personal needs, less exacting jobs, and less flexible wok assignments. In this research we examine the effects of such contextual factors on inservice outcomes.

Study Setting

The research reported in this article involves staff inservice workshops in Massachusetts, each of which incorporated one or more of each of the approaches described above. The Commonwealth Inservice Institute (CII) of the Massachusetts Department of Education awards small grants (range, $200 to $2,000) to local school districts that submit inservice proposals which give evidence of being:

- initiated and developed by the intended participants;
- based on documented need and approved by local officials;
- voluntary;
- sound in design and choice of instructor; and
- likely to have continued impact.

The research is based on the second phase of a 2 1/2 year study conducted by TDR Associates, Inc. of Newton, Massachusetts, supported by a grant from the National Institute of Education. The first phase of the study involved mailed, post-workshop questionnaires to 467 participants in 78 CII-sponsored inservice projects. Phase Two, involved responses to mailed, pre- and post-workshop questionnaires received from 460 participants in 36 (new) CII projects (yielding 349 matched, pre/post questionnaires). The Phase One questionnaires were revised for Phase Two, after on-site interviews with 84 Phase One participants in 14 Phase One projects. Seven of these projects were selected as having higher-impact workshops than originally predicted and seven as having lower-impact workshops than predicted, based on Phase One participants' ratings.

Results of the Phase One study are reported in detail in a prior article: "Staff, School, and Workshop Influences on Knowledge Use in Educational Improvement Efforts," by Herbert J. Walberg and William J. Genova, The Journal of Educational Research, Volume 76, November/December 1982, Number 2, pages 69-80, which is summarized below. The Phase Two study is both a replication and refinement of the previous effort.

Phase One Reviewed

The first phase of this research was guided by an a priori conceptual model, derived from a literature review and the authors' experiences with school climate measurement and improvement. This model is depicted in Figure 1 as a path diagram of possible influences on knowledge use in staff inservice workshops.

Insert Figure 1 about here

Individual and school characteristics are treated in the Figure 1 as Less Alterable and causally prior to the More Alterable Variables. For example, a teacher's sex, years of experience, and personal traits, and the characteristics of his/her school may affect his/her reactions to features of a workshop, but the workshop experience is not likely to change any of the preceding factors. Similarly, school climate seems more likely to be influenced by, than to influence these prior variables, but it is an aspect of a school that can be significantly altered by intelligent planning. In the regression analyses, the Less Alterable Variables were therefore treated as controls.

Table 1 shows the multiple correlations of these sets of control, climate, and workshop variables with three measures of knowledge use and impact: "classroom" use; use on "other" levels of the school (e.g., department, grade level, the whole school, etc.); and "total" impact (e.g., "classroom" plus "other" plus participants' estimates of new information, skills, or ideas gained from various aspects of the workshop, whether employed in practice or not).

Insert Table 1 about here

Table 1 shows that of the control variables, participants' sphere of concern and personal traits, and the characteristics of their schools, are modestly related to the three measures of knowledge use. Table 1 also shows that adding the school climate variables to the control variables raises the multiple correlations from about .40 to about .50, and that adding the workshop to the control variables raises the correlations from about .40 to the range of .68 to .77. Adding both climate and workshop features raises the multiple correlations to the .70 to .80 range, which is just about equal to the reliabilities of the independent variables. The complete equations containing the climate and workshop variables are significant at the .01 level. Moreover, many of the specific partial correlations that control for individual and school characteristics are substantially more highly correlated with impact than the control variables are separately.

Phase Two Design

As stated earlier, interviews were conducted with 42 participants in 7 higher impact, Phase One projects, and 42 participants in 7 lower-impact, Phase One projects. These projects were also selected on the basis of their high discrepancy between predicted impact (based on the model) and observed impact (as measured by the questionnaire). The results of these interviews suggested extensive refinements of the Phase One questionnaire. Separate pre- and post-workshop instruments were developed for Phase Two. The sets of variables in these refined instruments are shown in the remaining tables, along with the results of the correlational analyses conducted on them.

The subjects for the Phase Two study were 460 participants in 36 new CII projects. Copies of a 17-page, 222-item pre-workshop questionnaire were mailed to project conveners, who distributed them to and collected them from participants as the workshops began. A 13-page, 153-item post-workshop questionnaire was mailed directly to individual participants shortly after the workshops concluded. This yielded 349 matched, pre/post questionnaires. Project conveners and participants were paid small honoraria for completing and returning the lengthy questionnaires.

Phase Two Results and Discussion

Inservice Outcomes

Table 2 presents the five inservice outcome (dependent) variables discussed in this article. These variables are defined in Table 2, along with frequency

distributions, means, and standard deviations for the items used to measure them. They are presented in the form of a proposed "chain reaction" among various levels of inservice impact. For example, we hypothesized that:

- participants' overall rating of the inservice project would affect the amount and type of new knowledge which they acquired;
- the application of the new knowledge acquired would affect participants' estimates of the impact of the inservice on their own work performance, and on the behavior of other individuals in the school and school district;
- impact on work would influence participants' estimates of their overall capacities to perform their jobs effectively. [1]

It can be seen in Table 2 that, overall, participants rated their inservice

Insert Table 2 about here

workshops as moderately successful. The type of knowledge most often acquired was new information (ideas), whereas new behaviors were least often acquired. New information (ideas) and skills (techniques) were applied (tried out) most frequently; new activities (worksheets) were least frequently tested. Participants judged that their own teaching and that of close fellow staff members were most affected by the inservice; the activities of their professional association or union least affected. They felt that the workshops had most powerfully enhanced their abilities to create challenging and effective learning experiences for students, and least noticeably increased their skills at influencing fellow teachers and administrators concerning important school matters.

[1] A sixth outcome variable, predicted future use, will be examined in a forthcoming article on a follow-up study, in which predicted future use is compared with reported use six months later.

Less Alterable Variable Sets

Staff Background Characteristics

Table 3 shows that about 77% of the sample are women with a wide range of age, education, and experience. Three-fourths are classroom teachers, including

Insert Table 3 about here

47% elementary teachers, 18.1% junior high school teachers, and 12.3% high school teachers.

Table 3 also shows varied correlations among participant characteristics and the five inservice outcome variables. Women appear to apply (try out) what they acquire from inservice more than men do. Older participants tend to rate their inservice more negatively, but also tend to report more knowledge acquired, and greater impact on their job performance and professional capabilities. Highest degree attained doesn't seem to matter, but the more years in education, in present school district, and in present school, the higher the overall ratings of the workshop, of knowledge acquired, of impact on work and of impact on capacities.

Specialists appear to acquire the least new knowledge; aides or permanent substitutes the most, as well as experiencing positive impact on their job performance and capacities. Elementary teachers appear to gain most, junior high teachers appear to gain least, from the CII workshops. The number of credit hours taken at a college or university in the past two years is positively related only to knowledge applied. In contrast, the total number of days of inservice attended during the past two years is strongly and positively correlated with all five outcome variables.

Staff Psychological and Professional Traits

Table 4 shows that the four learning styles in the Kolb Inventory (Kolb, 1976) are correlated significantly with few of the five outcome variables. This may be due to the low scale reliabilities obtained from this particular sample (Alpha = .42 to .59). Significant correlations appear, however, between

Insert Table 4 about here

those expressing a preference for learning by concrete experience, and work performance and professional capabilities.

Sphere of concern and sphere of involvement show simular patterns. Degree of concern for and involvement with own students, class, grade level or unit is related to knowledge applied (and to impact on work, for concern). Concern for and involvement with fellow staff and whole school are both related to job performance; concern and involvement with community and district are more strongly related to knowledge applied, impact on work, and impact on capacities. Thus, it appears that the more encompassing a participant's concern and involvement, the more he/she derives from inservice experiences.

Participants' report psychological needs more oriented to students than to peers and supervisors. The strength of their need to create successful learning experiences for students (need achievement) is correlated with the level of knowledge applied, impact on work, and impact on capacities. Need achievement with peers and supervisors is related only to professional capabilities. Participants; need for power (influence) over students is not significantly related to any of the five inservice outcomes. Their affiliation (social

acceptance) needs with all three groups are, however, related to the effect of the inservice experience on their work performance. Additionally, their affiliation need with supervisors is related to perceived gains in their professional capacities.

Topics that participants expressed the greatest desire to learn more about included their own methods and style, motivating students to learn, and new or varied teaching methods. They expressed least interest in learning about how to use worksheets or learning exercises, encouraging student career/vocational awareness, and enhancing students' social relationships. Of the correlations among inservice desires and inservice outcomes shown in Table 4, the strongest associations with all five outcome variables involve learning to better use community resources, and providing guidance and counseling to students. Seven of the remaining inservice preferences are significantly correlated with impact on performance.

Table 4 also shows that several of the participants' reasons for attending the particular inservice experience correlate with inservice outcomes. Knowledge acquired, knowledge applied, impact on work, and impact on capacities are all moderately to strongly related to participants' interest in the topic, the reputation of the consultant, the needs of their students/classes, their interest in sharing ideas with fellow staff members, and the content/skill needs of their job. Convenient time/location is related to knowledge acquired and job performance, and desire to please a colleague or supervisor is related to professional capacities.

Interestingly, the strongest correlation reported so far is a highly negative one (-.57) between the overall quality of the workshop and being required or pressured to attend. All of these workshops were supposed to be voluntary, but apparently a minority (less than 5%) of participants experienced some form of pressure, with apparently negative consequences. The most frequent reasons for attendance were interest in the topic and the needs of students/classes, both of which are associated with positive outcomes.

Participants were asked to record the number of times the current inservice topic had been addressed (if at all) in inservice programs during the preceding two years. The mean response was .81 times, with most of the distribution falling between none to two times. As expected, the more often the topic had been covered in the past, the less knowledge acquired by participants in the current workshop.

We also anticipated that the nature of participants' expectations for the upcoming inservice would affect the outcomes of that inservice. As shown in Table 4, such expectations are related to all five outcome measures. These correlations emerge despite the fact that participants had relatively lower expectations for the upcoming inservice than they had in general for inservice programs offered by universities/colleges, teacher centers, and the CII. Only inservice training offered by the district/central administration elicited lower expectations than those reported for the upcoming program.

Various methods of presentation and learning are the final subjects on which data are presented in Table 4. The highest rated methods are "hands-on"

activities, and putting the information into practice in class(es). However, these most favored methods correlate only with knowledge acquired, and knowledge applied, respectively. Correlations with all five inservice outcomes appear for the moderately favored methods of reading, small group discussions with other colleagues, and having the consultant work with participants in their classes. This suggests that inservice participants are not always the best judges of which presentation methods will work best for them. The remaining, scattered associations also suggest that a variety of presentation methods will yield the greatest cumulative effect.

School and Community Characteristics

Table 5 shows that certain (less alterable) classroom and community characteristics are related to particular inservice outcomes. For example, participants who characterize their class(es) as high ability show significant

Insert Table 5 about here

gains in knowledge acquired and impact on work, and they give an overall higher rating to the inservice experience. In contrast, participants who describe their school's community as blue collar report negative inservice impacts concerning knowledge acquired and job performance, and they rate the overall inservice experience negatively. Consistent with these results, the five outcomes correlated positively with communities described by respondents as supportive, friendly, prosperous, residential, and unified. In contrast, participants from communities designated as urban tend to give the workshops positive overall ratings, but do not report significant impacts on the other four scales.

The final set of variables shown in Table 5 concern possible external events or changes in the previous year (other than the inservice) that participants perceive as having effected inservice outcomes. Two-thirds of the possible relationships are significant and positive. All twelve event/change areas are correlated with capacity for work and these associations are on the whole the strongest in the set. We do not know from this data what the events/changes were, but apparently the dynamics of the external environment of participants (from their students to their personal lifes) all have some affect on what they gain from inservice experiences.

To summarize, the variable sets discussed above and shown in Tables 3 through 5 are treated in this study as less alterable variables, with respect to the design and conduct of inservice training (see Figure 1). The correlations reported so far are all simple Pearson correlations. We turn now to variable sets that we regard as more alterable, specifically school climate and workshop features. The relationships reported among these variables are partial correlations, using the less alterable variables as controls.

More Alterable Variable Sets

School Climate

As a set, the eight school climate variables do not correlate significantly with the inservice outcomes. Expectation for teachers to keep up professionally

Insert Table 6 about here

is significantly related to knowledge applied, which seems reasonable. Puzzling, however, is the negative relationship between Expressiveness and participants'

overall inservice rating. In the Phase One study Expressiveness, as well as Learning Orientation, Goal Direction, and Ecual Treatment were all moderately related (.12 to .31) to workshop outcomes measured similarly but not identically to how they were assessed in Phase Two. In Table 6, Expectation, Leadership, and Support are newly added variables which do not correlate significantly with the workshop outcomes.

Table 6 also shows several classroom and school characteristics presented in the questionnaire in a semantic differential format. Again, using the less alterable variables as controls, the partial correlations are small and statistically significant in only 12 of 70 possible relationships. Impact on work is most strongly related to democratic classrooms, and to schools which are described as active, interesting, and democratic. Professional capabilities is related to relatively boring and democratic classrooms, and to unfriendly schools. This set of relationships seems confused, and is difficult to interpret. Suffice to say that the school climate variables are not as clearly and strongly related to the Phase Two outcome variables as they were to the Phase One outcomes.

Workshop Features

Table 7 shows that approximately 80% of the participants attended workshops on basic skills (24%), students with special needs (18.9%), and/or computer assisted instruction (35.4%). The computer workshops are interesting in that

Insert Table 7 about here

participants rate them overall high (.17 partial correlation), but rate knowledge applied and impact on capactiy low (-.14 and -.10 partial correlation, respectively). In follow-up interviews with a sample of these participants, we discovered that post-workshop shortages of hardware, software, and administrative support were typical, negating the positive effects of the workshop training. In contrast, the workshops on basic skills do not receive high overall ratings, but achieve respectable correlations with participants' improved work capactiy. Workshops on students with special needs correlate negatively with job performance, with no explanation for this apparent in this data.

The major reasons given for attending the inservice workshops were "Volunteered out of interest" (54.1%), and "Saw it advertised" (13.8%). However, neither of these reasons correlates with the five inservice outcomes. Participants who initiated the workshop idea rate it positively, and report beneficial effects on their job performance and job capacity. In contrast, participants asked to attend by a colleague report negative impact on the same two outcomes, plus knowledge acquired. Similarly, participants ordered to attend rate the workshop negatively, overall.

Approximately 60% of the ideas for the workshops came from a fellow teacher (25.4%), group of teachers (20.3%), or supervisor/chairperson (15.7%). The only significant correlation is negative, between fellow teacher as source of the idea, and knowledge applied. Overall, it appears that the source of the inservice idea does not affect inservice outcomes.

Table 7 also shows that degree of importance placed on inservice (in general) by participants' administrators does not appear to affect inservice outcomes. This is consistent with the finding that negative ratings are given to inservice programs that participants are required to attend. The number of inservice sessions held is correlated with a negative overall rating (the more sessions, the lower the rating); however, the more sessions participants attended, the higher the impact on work rating. The larger the number of participants the lower the rating for knowledge acquisition, but the higher the rating for job performance capacity.

Workshops with people from different schools or different districts are rated lower overall, and have less impact on knowledge acquired, than workshops with people attending from only one school or district. The larger the number of consultants, the more negative the overall inservice rating, and the more negative the impact on job performance and job capacity. The impact of the affiliation of the consultant is particularly interesting. Positive inservice outcomes are associated with a consultant from the participants' own school, elsewhere in the same system, and another school system. Negative outcomes derive from a consultant from a college or university, an independent consulting group, and a business or industry.

Consultant characteristics, methods of instruction, and practical (versus theoretical) orientation, show many moderate to strong positive correlations with inservice outcomes. Of the 200 relationships shown in this part of Table 7, 134 are significant. The extent to which the consultant's style of presentation

matched the participants' style of learning is correlated positively with all five inservice outcomes. The consultant's general effectiveness correlates positively with the overall rating of the program, knowledge acquired, and knowledge applied, but not with impact on work or impact on capabilities. The consultant's effectiveness in relating to participants, understanding teachers' concerns, etc., is related to most of the inservice outcomes (57 of 65 possible relationships, with partial correlations from .10 to .46). Similarly, the consultant's methods of instruction and practical orientation are positively related to most (albeit fewer) of the inservice outcomes. Negative effects appear for consultants who lectured or used audio visual presentations or films too much.

The last set of variables shown in Table 7 concerns associations between the theoretical versus practical orientation of various workshop methods used, and the five inservice outcomes. Of 60 possible relationships, 34 are statistically significant using partial correlations. In general, they indicate that the more practical the experience the more positive the inservice outcomes. This is consistent with the result reported above that teachers see themselves as concrete, experiential learners. Further confirmation appears in the finding that all five outcome measures are significantly related to "applying the skills, techniques, or behaviors in your class(es)."

Intermediate Workshop Effects

The sets of variables discussed here focus on what participants learned about in the workshops, and how they learned it. As seen in Table 8, participants reported learning most about new or varied teaching methods/technology and

motivating students to learn, and least about interracial attitudes or relationships and career/vocational awareness for students. Of 70 possible relationships, 59 are significant statistically. These results complement those reported in Table 4, concerning participants' major interests.

Insert Table 8 about here

The final variables shown in Table 8 relate to participants' subsequent use of the knowledge gained through the inservice experience. Participants' interest in the topic, the nature of the workshop itself, and the needs of students/class(es) are cited as most important; administrator, supervisor, and colleague support or expectation emerge as least influential. Thirty-four of 35 possible associations with the five inservice outcome variables are significant. Of these, the workshop itself shows the strongest partial correlation with inservice outcomes. Interestingly, improvement in participants' work capacities is most strongly associated with administrator, supervisor, and colleague support or expectations.

Combined Effects of All Variables

Table 9 shows the multiple correlations of the five measures of inservice outcomes with the sets of control (less alterable) and school climate and workshop (more alterable) variables. Participants' background characteristics

Insert Table 9 about here

are weakly to moderately related to these inservice outcomes. Significant correlations appear only with knowledge applied and impact on work. As Table 3 shows, inservice outcomes are most positive for participants who have experienced prior inservice programs, and who indicate high overall satisfaction with their jobs.

Table 9 also shows that adding the professional/psychological traits of participants to their background characteristics raises the multiple correlations from about .40 to .55. Among these traits, participants' job-related (professional) needs/concerns/desires are more positively related to the inservice outcomes than are their psychological traits (see Table 4).

Adding school, district, and community characteristics to participants' background characteristics actually lowers the multiple correlations, except for impact on capacity (raised from .36 to .39). As a set, these control (less alterable) variables show multiple correlations of .69 to .71 with the inservice outcome variables.

Table 9 shows that adding the school climate variables to the control variables lowers the multiple correlations. Adding the inservice workshop features raises the multiple correlations from about .70 to .80 for overall inservice rating and knowledge acquired. Adding the intermediate workshop effects raises knowledge acquired from .71 to .81. Adding all the climate and workshop variables to the control variables raises the multiple correlations from about .70 to .92, which is approaching the limits of the reliabilities of the scales used to measure these independent variables (see Tables 6-8).

When all of these less alterable and more alterable variables are combined, their multiple correlation with the five inservice outcome variables is approximately .92. This accounts for about 85% of the variance in the inservice outcomes. In the first phase of the study, the combined control and independent variables accounted for about 64% of the variance in three similar outcome measures (multiple correlation equaled .80). Presumably, the Phase Two model accounts for more of the variance because it includes more variables, derived from the case site interviews.

Conclusions

Despite their differences, both the Phase One and Phase Two models, using varied instruments and different subjects, lead to similar overall conclusions. The outcomes of inservice training appear to be affected by multiple factors and conditions. Between 64% to 85% of the variance in inservice outcomes is accounted for in this study by individual participant, classroom, school, and district characteristics.

Participants' psychological needs and job demands are individual characteristics that are strongly correlated with inservice outcomes. For the designers of staff inservice, the following findings of the present study seem particularly salient:

- Teachers tend to be practical (versus theoretical) learners.
- They report high needs to:
  - achieve (be successful with students; and
  - be appreciated (recognized as successful) by superiors.

- They want and will use information on:
  - new or varied teaching methods;
  - motivating students to learn/achieve; and
  - their own teaching style or behavior.
- They prefer to learn:
  - through hands-on activities; and
  - by putting information into practice in their classes.

The attitudes, expectations, and support of people around inservice participants affect their inservice outcomes. For example,

- School systems differ significantly in their ability to promote and develop effective inservice training.
- Blue collar communities often experience negative inservice impacts, in contrast to white collar communities which generally experience positive inservice impacts.
- Community attitudes toward education influence teacher attitudes toward inservice training.
- Elementary schools are more supportive environments for staff development than secondary schools are.
- A school's or school system's "track record" of inservice training is strongly related to the likely impact of any current inservice program.
- Changes at the school level----in student population, staff composition, or administration----can often inhibit the development and impact of effective staff inservice.

School climate appears to play a modest, albeit potentially important role in inservice outcomes. In Phase One of the study, positive inservice outcomes were significantly related to Learning Orientation, Expressiveness, Goal Direction, and Equal Treatment. In the Phase Two study, the climate variables as a set did not correlate significantly with the inservice outcomes.

Classrooms and schools described as democratic (as opposed to authoritatian) are related to positive outcomes. However, the lack of consistency between our two sets of data leaves unresolved the question of the role of climate in affecting the outcomes of inservice training for participants.

Finally, beyond the control variables the largest and most consistent effect on inservice outcomes appears to be exercised by features of the workshops themselves. As in Phase One, the present data indicate that the quality and characteristics of the workshop itself are significantly related to participants' ratings of effective inservice, particularly in the following areas:

- Methods of recruitment:
  - when respondents attend voluntarily, associations are positive; on the other hand,
  - when the respondent was obliged to attend the association was significantly negative.
- Methods of presentation: educators prefer to acquire practical skills and information, and they prefer instructional methods that are interesting and varied. Specific instructional techniques which were rated as more effective for inservice programs are:
  - small group discussions,
  - practice implementation of skills learned at session,
  - observing other participants or consultants in practice, and
  - practicing new techniques in the work setting while the training program continues.

On the other hand, the following methods have negative effects:

- lecturing by an instructor or consultant; and
- the use of information packages (packets) as the main vehicle for presenting workshop content.

- Organizational characteristics of the workshops: the following characteristics are likely to produce positive ratings of inservice training:
  - duration: the optimal range for most workshops is between 12 and 32 hours. One-day workshops have minimal impact.
  - size: an optimal range for the number of participants is 8 to 20.
  - representation: single school workshops tend to have positive impact, multi-school workshops tend to have negative impact.
  - school level: elementary school teachers/administrators are more likely to rate their inservice experience positively than middle school and secondary teachers/ administrators.
- Workshops and long-term use: the structure of the inservice workshop experience and the characteristics of the consultant/presenter have significant impact on what participants acquire and use, both immediately after the workshop and over a longer period of time (six months or more). Short and long-term use is associated with workshop strategies that:
  - require teachers to try out and report on their experiences with new skills, information, etc.;
  - provide teachers with in-class technical assistance;
  - supply teachers with resources, information, and activities easily adaptable to the classroom setting; and

- require teachers to develop projects, activities or curricula for their classes.

Of all of these factors and conditions, the various features of the workshop itself are under greatest degree of control by its designers. Their goal should be a plan of action that permits them to:

- identify and recruit those participants who will potentially profit most from the workshop;
- allocate generously time and means to assist participants in planning and applying what they learn in the workshop in their normal teaching settings; and
- develop administrator support for knowledge application during and subsequent to the workshop.

According to the research reported in this article, the more that these provisos are attended to in the workshop design, the more likely the inservice experience will produce positive outcomes.

References

Campbell, R. J. "Knowledge, Control and In-Service Education and Training for Teachers." British Journal of Teacher Education 7 (1981): 149-63.

Cruickshank, D. R.; Lorish, C.; and Thompson, L. "What We Think We Know About Inservice Education." Journal of Teacher Education 30 (1979): 27-32.

Holly, M.L. "Teachers' Views on Inservice Training." Phi Delta Kappan 63 (1982): 417-18.

Joyce, B., and Showers, B. "Improving Inservice Training: The Messages of Research." Educational Leadership 37 (1980): 379-82.

Kolb, D. The Learning Style Inventory: Technical Manual. Boston: McBer. 1976.

Walberg H. J. and Genova W. J. "Staff, School, and Workshop Influences on Knowledge Use in Educational Improvement Efforts." The Journal of Educational Research 76 (1982): 69-80.

Table 1

Multiple Correlations of Impacts With

Sets of Control and Independent Variables

Variables Entered in Equation	Multiple Correlation With Impact		
	Classroom	Other	Total
Control Variables			
Background Characterisitics of participants	.17	.21	.20
Sphere of Concern of Participants	.22*	.22*	.26**
Personal Traits	.13	.20**	.19**
School Characteristics	.30*	.30*	.30*
All Control Variables Above	.39	.42**	.43**
All Control Variables and School Climate	.49**	.48**	.51**
All Control Variables and Workshop Features	.73**	.68**	.77**
All Control Variables, School Climate, and Workshop Features	.76**	.70**	.80**

r $>$ .10 = .05 sig.
r $>$ .14 = .01 sig.

Table 2

Inservice Outcome Variables

		Mean	Standard Deviation
Overall Inservice Rating			
Participants' overall rating of the inservice project they completed (scored from 1 = a total failure to 4 = a huge success)		3.11	.63
A total failure	2.6%		
Moderately unsuccessful	6.6%		
Moderately successful	67.3%		
A huge success	23.5%		
Knowledge Acquired			
How much new information, skills, behaviors, activities, or attitudes participants acquired from their recent inservice project (coded from 0 = none at all to 4 = an extraordinary amount) (reliability = .86)		2.23	.78
1. Information (ideas)		2.66	.89
2. Skills (techniques)		2.42	1.02
3. Behaviors		1.83	1.10
4. Activities (worksheets, etc.)		1.86	1.17
5. Attitudes		2.08	1.56

r > .10 = .05 sig.
r > .14 = .01 sig.

Table 2 (continued)

	Mean	Standard Deviation
Knowledge Applied		
Frequency of use (applied, tried out) of knowledge acquired through the inservice experience (coded 0 = not at all to 4 = continually) (reliability = .92)	2.20	1.18
1. Information (ideas)	2.17	1.40
2. Skills (techniques)	2.17	1.46
3. Behaviors	1.67	1.51
4. Activities (worksheets, etc.)	1.55	1.48
5. Attitudes	1.82	1.57
Work Effect		
The level of impact (effect) the recent inservice project had on each of the following. (coded from 0 = none at all to 5 = extremely high) (reliability = .91)	1.87	1.03
1. Certain students within your class(es)	2.04	1.38
2. Your own classroom/class(es)	2.08	1.31
The classrooms and students of other teachers in your school	1.80	1.37
3. The work of a few of your closest fellow staff members	2.13	1.34
4. All teachers in your school	1.54	1.18
5. Your department or grade level unit	1.74	1.38
6. Your school building as a whole	1.77	1.30
7. Your school district as a whole	1.61	1.27
8. Your professional association or union	.80	1.04

Table 2 (continued)

	Mean	Standard Deviation
9. The parents of students that you teach	1.14	1.26
10. The community in which your school is located	1.08	1.27
11. Your personal life	1.98	1.44
Work Capacity		
The effect which the inservice project had on participants' perception of their ability (capacity) to do the following. (coded from 1 = very negative impact to 4 = very positive impact) (reliability = .88)	1.67	1.88
1. Create challenging and effective learning experiences for students	2.72	1.41
2. Command respect and/or be acknowledged by fellow teachers for professional achievement and skill	1.65	1.59
3. Gain recognition for superior teaching from supervisors or administrators	1.32	1.61
4. Relate well to students in classrooms	2.16	1.60
5. Get along well with other teachers in the school	1.38	1.59
6. Relate effectively and comfortably to supervisors or administrators	1.35	1.61
7. Control class(es) and students' behavior	1.21	1.61
8. Influence fellow teachers in things that are important	.99	1.44
9. Influence supervisor/administrator in things that are important	1.07	1.52

Table 3

Background Characteristics of Inservice Participants and Correlations With Inservice Outcomes

Variable, Mean, and Standard Deviation	Percentage Responses	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capacities
Female (coded sequentially)		.09	.05	.15	.09	.03
Male	23.1%					
Female	76.9%					
Age range in years						
Mean: 39.8; S.D.: 9.00		-.15	.11	.00	.14	.14
20 - 25	3.7%					
26 - 30	11.7%					
31 - 35	24.3%					
36 - 40	20.6%					
41 - 50	25.6%					
51 or older	14.1%					

$r > .10 = .05$ sig.
$r > .14 = .01$ sig.

Table 3 (Continued)

Variable, Mean, and Standard Deviation	Percentage Responses	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capacities
Highest Degree attained (coded sequentially 1, 2, 3, etc.)						
Mean: 1.70; S.D.: 0.85		-.02	.01	-.01	.01	.01
Bachelors	48.6%					
Masters	35.5%					
Masters plus 30 hours	13.6%					
Certificate of advanced study	1.7%					
All but dissertation	.2%					
Doctorate	.5%					

Table 3 (Continued)

Variable, Mean, and Standard Deviation	Percentage Responses	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capacities
Years in education						
Mean: 13.6; S.D.: 6.9		.12	.13	-.01	.12	.11
1 - 5	9.3%					
6 - 10	20.0%					
11 - 15	21.9%					
16 - 20	17.8%					
21 - 25	7.3%					
26 or more years	5.9%					
Years in present school district						
Mean: 11.0; S.D.: 6.3		.11	.14	-.01	.11	.07
Years in present school						
Mean: 8.8; S.D.: 5.9		.10	.13	.02	.12	.06
1 - 5	39.1%					
6 - 10	18.9%					
11 - 15	22.8%					
16 - 20	6.7%					
21 or more years	2.7%					

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Table 3 (Continued)

Variable, Mean, and Standard Deviation	Percentage Responses	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capacities
Role in School						
Classroom teacher	73.9%	.06	.09	-.06	-.01	-.02
Special needs teacher	6.3%	-.05	-.02	.09	.00	.06
Specialist	9.7%	.00	-.11	.02	-.02	.07
Teacher with administrative role	2.4%	-.06	-.05	.04	-.01	-.04
Aide or permanent substitute	4.1%	.01	.10	.03	.10	.10
Majority of time as an educator						
Elementary classroom teacher	47.2%	.16	.15	.08	.10	.09
Junior high school classroom teacher	18.1%	-.09	-.11	-.10	-.11	-.04
High school classroom teacher	12.3%	-.08	-.05	-.07	-.08	-.09
Elementary specialist	7.3%	.02	-.00	.10	.03	-.02
Secondary specialist	4.5%	-.06	-.06	-.09	-.02	.05
Elementary special needs	4.8%	-.02	.01	.11	.04	-.02
Secondary special needs	2.6%	-.06	-.11	-.08	-.10	-.06
Administrator	2.9%	-.02	.07	.02	.07	.05

Table 3 (Continued)

Variable, Mean, and Standard Deviation	Percentage Responses	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capacities
Number of credit hours taken at a college or university over the past two years						
Mean: 4.7; S.D.: 7.1		-.06	.05	.13	-.05	.07
None	39.1%					
3 or less	22.2%					
4 - 6	17.9%					
7 - 9	7.1%					
10 - 12	5.3%					
Over 12	8.1%					

Table 3 (Continued)

Variable, Mean, and Standard Deviation	Percentage Responses	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capacities
Number of days of inservice training received over the past two years						
Mean: 8.7; S.D. 10.6		.11	.17	.23	.15	.17
None	22.5%					
1 - 5 days	28.3%					
6 - 12 days	26.6%					
13 - 18 days	11.1%					
19 or more days	11.3%					
Residence (Do you reside where you teach?)						
Yes	43.4%	-.07	-.07	.01	.02	.05
No	56.6%	.06	-.01	-.01	.17	.05

Table 3 (Continued)

Variable, Mean, and Standard Deviation	Percentage Responses	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capacities
Job status for next year						
Same job	91.4%	-.01	-.01	.04	.06	-.03
Leaving my job	2.0%	-.06	-.02	-.08	.00	-.03
Don't know	6.0%	.01	.01	-.02	-.07	.02
Overall job satisfaction		.25	.18	.22	.18	.18
Mean: 3.78; S.D.: 0.91						
Very high	20.8%					
High	42.8%					
Moderate	28.3%					
Low	4.6%					
Very low	2.7%					

Table 4

Psychological & Professional Traits of Inservice Participants and Correlation with Inservice Impacts

Personal Traits	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capacities
Individual Learning Style: (1) with reliabilities ( )							
Reflective (.59)	11.19	3.19	.06	-.04	-.02	-.02	-.05
Experimental (.43)	16.39	3.11	-.03	.02	-.02	-.00	-.00
Concrete (.42)	15.46	3.32	.01	.06	.04	.12	.12
Abstract (.59)	15.94	3.59	.08	.02	-.00	-.06	-.05

(1) Using David Kolb's Learning Style Inventory (1976), participants were asked to identify themselves as either: reflective learners, experimental learners, concert experienced learners or abstract conceptual learners. Learning style scales are presented with reliabilities ( ).

$r > .10 = .05$ sig.
$r > .14 = .01$ sig.

Table 4 (continued)

Personal Traits	Mean	Standard Deviation	Overall Inservice Rating	Correlation with Inservice Outcomes: Know. Acq.	Know. Applied	Impact on Work	Impact on Capacities
Sphere of Personal Concern:(2) with reliabilities ( )							
For your own students, class and grade level or dept. (.61)	4.46	.57	.06	.05	.15	.14	.03
For your fellow staff, and school as a whole (.72)	3.30	.61	.01	.01	.06	.14	.08
For your community and district (.66)	3.35	.65	.06	.06	.14	.19	.10

(2)How much concern participants have for what happens regarding (coded from 1 = none or little to 5 = high) sample items and reliabilities ( ) given.

Table 4 (continued)

Personal Traits	Mean	Standard Deviation	Overall Inservice Rating	Correlation with Inservice Outcomes: Know. Acq.	Know. Applied	Impact on Work	Impact on Capacities
Sphere of Involvement:(3)							
with reliabilities ( )							
With my own students, class, grade level or unit (.60)	4.27	.56	.02	-.03	.11	-.00	.03
With fellow staff and my school as a whole (.74)	3.21	.66	-.05	-.00	.07	.10	.06
With the school district and community (.73)	3.35	.65	.07	.09	.13	.18	.15

(3) How much participants tend to get involved with what happens regarding (coded from 1 = not at all to 5 = very high), sample items and scale reliabilities ( ) given.

Table 4 (continued)

Personal Traits	Mean	Standard Deviation	Overall Inservice Rating	Correlation with Inservice Outcomes: Know. Acq.	Know. Applied	Impact on Work	Impact on Capacities
Psychological Needs For: (4) with reliabilities ( )							
Achievement							
...with Students:							
Creating successful learning experiences for students (.56)	3.82	.47	-.07	.02	.11	.16	.14
...with Peers:							
Colleagues tell you they learn from you (.78)	3.28	.67	.01	.00	.06	.08	.12
...with Supervisors:							
Being regarded as superior by supervisors (.76)	3.68	.64	.01	.02	.09	.08	.15

(4) (Coded from 1 = very low or none to 5 = very high) with sample items and scale reliabilities ( ).

Table 4 (continued)

Personal Traits	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Power							
...Over students:							
Students follow your directions (.77)	3.95	.55	-.01	-.07	-.04	.05	-.03
...Over Peers:							
Fellow staff follow your suggestions (.80)	3.05	.64	-.01	-.02	.05	.02	.07
...Over Supervisors:							
Persuade supervisors to do things your way (.78)	3.02	.65	-.03	-.06	.02	.02	.08

Table 4 (continued)

Personal Traits	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Social Acceptance							
...by Students:							
For your students to like you (.66)	3.55	.57	-.00	-.01	.01	.11	.08
...by Peers:							
Socialize with fellow faculty (.76)	3.04	.63	.09	.04	.00	.11	.02
...by Supervisors:							
Have supervisors enjoyed talking with you (.64)	3.10	.65	.08	-.03	.03	.12	.14

Table 4 (continued)

Personal Traits	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Inservice Desires: (5)							
1. New subject matter or topics to teach	3.75	.94	-.01	.06	.03	.07	.02
2. New or varied teaching methods	4.05	.79	.09	.04	.14	.11	-.00
3. Motivating students to learn/achieve	4.34	.76	.13	.03	.13	.10	.05
4. Use of worksheets or learning exercises	3.20	1.04	.05	-.00	.08	.03	.01
5. Dealing with disruptive students	3.82	1.00	.03	-.01	.03	.09	.05
6. Working more effectively with special needs (Chapter 766) students	3.63	1.03	.08	.04	.07	.13	.08

(5) How much interest participants have in learning more about... (Coded from 1 = little or no to 5 = extremely high)

Table 4 (continued)

Personal Traits	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
7. Enhancing social relationships among students	3.27	1.05	.10	.05	.06	.11	.09
8. Working more effectively with gifted and talented students	3.85	.98	.02	.02	-.01	.05	.06
9. Career/vocational awareness for students	3.26	1.09	.00	.05	.05	.09	.08
10. Improving interracial attitudes/relationships	3.23	1.07	.04	-.06	.04	.11	.04
11. Learning to better use community resources	3.42	.98	.14	.15	.11	.21	.14
12. Proving guidance and counseling to students	3.41	1.03	.10	.14	.16	.19	.14

Table 4 (continued)

Personal Traits	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
13. Increasing your awareness of your own teaching style/behavior	3.95	.86	.04	.11	.17	.18	.05
14. Improving staff communication or morale	3.64	.99	.02	.09	.09	.11	.07
Reason(s) for Attending							
1. My interest in the topic	4.07	.96	.24	.24	.16	.17	.12
2. Reputation of consultant	2.47	1.45	.16	.19	.20	.28*	.22
3. Convenient time/location	3.04	1.35	.01	.12	.09	.16	.08
4. Need for inservice increments	1.99	1.28	-.03	.01	.01	-.03	-.07
5. Low/no cost course credits	2.44	1.46	-.06	.02	.01	-.03	-.07

(6) The main reason(s) for attending the inservice training sessions, coded 1 = very low or none to 5 = extremely important.

Table 4 (continued)

Personal Traits	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
6. Needs of my students/ classes	3.49	1.33	.09	.14	.25	.23	.22
7. Interest in sharing ideas with fellow staff members	2.78	1.25	.16	.24	.16	.25	.27
8. Content/skill needs of my job	3.08	1.46	.01	.16	.19	.18	.27
9. Desire to please a colleague or supervisor	1.33	.71	-.06	-.02	.05	.09	.12
10. I am required to attend	1.22	.79	-.57	-.07	-.08	.05	.04

Previous Experience with the Inservice Topic:	Percentage Responses
Yes	33.6%
No	52.8%
I don't know	13.6%

Table 4 (continued)

			Correlation with Inservice Outcomes				
	Mean	Standard Deviation	Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Number of times the topic has been addressed by previous inservice programs in the past two years:	.81	.96	-.09	-.10	.04	-.06	.02
Expectations:(7)							
Of the upcoming inservice program	4.02	.79	.29	.31	.21	.25	.21
Of inservice training offered							
...at universities/colleges	4.52	1.30	.07	.05	.08	.01	-.04
...by universities/colleges at your school/district	4.41	1.38	.12	.09	.17	.08	.00
...at teachers centers or regional cooperatives	4.54	1.47	.09	.09	.06	.01	.09

(7) coded 1 = very low/negative to 5 = very high/positive.

Table 4 (continued)

Personal Traits	Mean	Standard Deviation	Overall Inservice Rating	Correlation with Inservice Outcomes: Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
...by teachers centers or regional cooperatives at your school/district	4.35	1.47	.11	.15	.09	.04	.08
...by Commonwealth Inservice Institute	5.08	1.28	-.01	.02	-.00	-.02	.03
...by your district/central administration	3.73	1.58	.11	.17	.04	.14	.14
Presentation Methods and Styles of Learning:(8)							
A consultant lecturing	3.23	.96	.15	.12	.03	.17	.06
Doing written homework	2.60	.99	.13	.13	.03	.07	.04
Reading	3.55	.83	.15	.17	.19	.16	.15

(8) Participants' ratings of the effectiveness of various presentation methods in terms of their own learning styles, coded 1 = very ineffective to 5 = very effective.

Table 4 (continued)

Personal Traits	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
From other colleagues in small group discussions	3.73	.92	.12	.14	.17	.19	.17
Hands-on activities	4.25	.83	.07	.11	.01	.01	.03
Developing projects or programs	3.71	1.06	.05	.17	.03	.08	.10
A.V. presentations, slides, simulations or games	3.64	.95	.13	.22	.07	.20	.16
Observing others do it (practice, apply)	3.57	.94	.11	.02	.06	.01	.00
Practicing the techniques, skills, and behaviors at the sessions	3.79	.91	.05	.11	-.03	-.10	-.02
Putting the information into practice in your class(es)	4.25	.73	.08	.10	.12	-.03	.03
Having the consultant work with you in your class(es)	3.50	1.00	.14	.18	.13	.15	.11

Table 5

School & Community Characteristics Correlated with Inservice Workshop Impact

Variable/Characteristic	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Classroom: (1)							
Large-Small	3.78	1.72	-.06	-.02	.05	.01	.01
Low ability-High ability	3.80	1.25	.15	.11	.08	.09	.10
Crowded-Spacious	3.72	1.64	.05	-.00	.07	.03	.07
Community:							
White collar-Blue collar	4.40	1.77	-.13	-.10	-.08	-.12	-.02
Non-supportive-Supportive	3.86	1.63	.19	.11	.10	.17	.08
Rural-Urban	3.29	1.67	.15	.09	.08	.05	.05
Unfriendly-Friendly	4.65	1.28	.23	.15	.13	.13	.10
Depressed-Prosperous	4.17	1.53	.20	.10	.15	.16	.05
Commercial-Residential	5.54	1.36	.04	-.00	-.02	.15	.03
Fragmented-Unified	3.65	1.40	.11	.06	.03	.11	.04

(1) Semantic differentials coded 1 to 7, left to right, below; 4 = neutral.

r > .10 = .05 sig.
r > .14 = .01 sig.

Table 5 (continued)

Variable/Characteristic	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Events: (2)							
. Certain students within your class(es)	1.21	1.32	.04	.12	.22	.10	.25
. Your own classroom/ class(es)	1.35	1.34	.14	.10	.20	.06	.20
. The classrooms and students of other teachers in your school	1.31	1.19	-.01	.10	.05	.05	.20
. The work of a few of your closest fellow staff members	1.49	1.23	.06	.20	.12	.14	.24
. All teachers in your school	1.37	1.09	.01	.12	.11	.15	.21
. Your department or grade level unit	1.43	1.21	.04	.11	.14	.12	.28

(2) The effect that any external events or changes in the past year (other than your inservice) have had on each of the variables, coded 0 = no effect; 1 = very negative effect to 4 = very positive effect.

Table 5 (continued)

Variable/Characteristic	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
. Your school building as a whole	1.52	1.11	.07	.13	.06	.13	.24
. Your school district as a whole	1.47	1.08	.05	.13	.09	.11	.19
. Your professional association or union	1.10	1.07	-.02	.05	.11	.09	.15
. The parents of students that you teach	1.29	1.32	.06	.11	.17	.11	.23
. The community in which your school is located	1.28	1.28	-.01	.09	.12	.12	.21
. Your personal life	1.46	1.34	.08	.22	.14	.07	.27

School Climate Characteristics and Correlations With Inservice Impacts

School Climate Variable (1)	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Expectation: Teachers are expected to keep up professionally (.81)	2.75	.40	-.03	.02	.10	-.01	-.05
Learning Orientation: Teachers value acquiring new professional skills (.77)	2.82	.43	.01	.03	.09	.09	-.01
Expressiveness: Creative work is respected here (.59)	2.80	.42	-.10	-.09	-.00	.04	-.07
Leadership: Administrators here make you feel enthusiastic about teaching (.88)	2.58	.53	.05	-.00	.01	.04	.05
Goal Direction: The goals of this school are clearly understood by most teachers (.72)	2.66	.46	.04	.07	.03	.01	.01
Support: Teachers here are encouraged to try new approaches to their work (.85)	2.56	.46	.04	.01	.04	.09	.04
Equal Treatment: Some teachers get special privileges (.74)	2.55	.51	-.02	-.03	-.02	-.05	-.02
Dealing With Problems: Teachers here are able to talk openly about school problems (.76)	2.60	.49	.07	.03	.03	.04	.06

(1) (4-item scales score 1 = strongly disagree to 4 = strongly agree, sample items and scale reliabilities given)

Table 6 (continued)

	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Classroom characteristics (2)							
Traditional - Non-Traditional	3.23	1.51	.06	.06	.03	.02	.09
Stressful - Satisfying	4.73	1.62	.09	.03	.04	.06	.08*
Unstrctured - Structured	5.42	1.28	-.12	-.11	-.07	-.07	-.01
Passive - Active	5.41	1.16	-.06	-.06	-.05	.03	-.04
Boring - Challenging	5.24	1.14	-.03	-.03	-.09	.01	-.14*
Unruly - Disciplined	5.55	1.19	.05	.00	.01	-.00	-.09
Democratic - Authoritarian	4.03	1.44	-.03	.03	.11	.11	.10
School Characteristics							
Fragmented - Unified	4.17	1.66	.05	.06	-.03	-.00	-.01
Passive - Active	4.36	1.51	-.04	.09	.07	.10	.08*
Ineffective - Effective	4.99	1.37	-.02	.05	.05	-.04	-.06
Boring - Interesting	4.91	1.29	-.03	.06	.05	.10	-.09
Unfriendly - Warm	5.17	1.34	-.12*	-.04	-.11*	-.09*	-.16*
Democratic - Authoritarian	3.90	1.48	-.00	.07	.05	.10	.04
Competitive - Cooperative	4.78	1.33	-.07	.03	-.03	-.01	-.03

(2) Semantic differentials coded 1 to 7, left to right, below; 4 = neutral.

r .10 = .05 sig.

Table 7

Inservice Workshop Features and Parital Correlations with Use/Impact

Workshop Features	Percentage	Correlation with Inservice Outcomes				
		Overall Inservice			Impact on	Impact on
Focus of Inservice Workshop (could indicate one or more)	Responses	Rating	Know. Acq.	Know. Applied	Work	Capabilities
Basic Skills	24.0%	-.05	-.03	.02	.01	.12
Students with Special Needs	18.9%	.02	-.03	.08	-.15	-.01
Career Needs of Students	1.0%	.04	.11	.09	.10	.07
Gifted and Talented Students	11.1%	.01	.07	.06	-.07	-.03
Discipline and Behavior of Students	9.4%	-.14	.07	.14	.06	.13
Computer Assisted Instruction	35.4%	.17	.02	-.14	.06	-.10
Other	7.5%	-.11	-.13	.03	-.06	0.08

r .10 = .05 sig.
r .14 = .14 sig.

Table 7 (continued)

Workshop Features	Percentage Responses	Overall Inservice Rating	Correlation with Inservice Outcomes: Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Reason for Attending the Inservice Workshop (would indicate one)						
Participant initiated the idea	3.6%	.14	.05	.05	.12	.12
Volunteered out of interest	54.1%	-.02	-.03	.02	-.02	.02
Saw it advertised	13.8%	.07	.08	.05	.00	-.06
Asked by colleague	8.7%	-.02	-.13	-.04	-.13	-.10
Felt it was responsibility	6.0%	.03	.01	.00	.01	-.03
Ask to do so by a supervisor/ administrator	7.0%	-.05	.06	-.07	.08	.04
Was ordered to attend	3.5%	-.12	-.05	-.00	-.06	.07
Source of the idea for the inservice workshop (would indicate one)						
Participant	2.2%	.01	-.04	.02	.03	.09
Fellow teacher	25.4%	.02	-.02	-.12	.02	-.09
Group of teachers	20.3%	.02	-.01	.01	-.04	.03
Supervisor/Chairperson	15.7%	-.05	.03	.01	-.02	-.03

Table 7 (continued)

Workshop Features	Percentage Responses	Overall Inservice Rating	Correlation with Inservice Outcomes: Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Building Principal	5.3%	-.04	-.04	.01	-.01	.09
District Administrator	3.1%	.05	-.02	-.04	.06	.04
Outside Consultant	0.5%	-.01	.05	.06	.09	.09
School Committee/Parents	2.9%	.04	-.02	.10	.05	.01
Needs Assessment	2.9%	-.00	.03	.04	-.02	.03
Unknown	15.7%	-.02	-.01	.04	-.03	-.02

Table 7 (continued)

Workshop Features	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Importance placed on Inservice by Administration (coded 1 = little to 4 = very high)	3.01	1.18	.06	.03	.03	-.08	.03
Number of sessions held in the inservice workshop	8.78	3.39	-.14	-.03	.03	.02	-.02
Number of sessions attended by participants	7.99	3.18	.03	.08	.08	.10	-.00
Amount of time devoted to the inservice (coded 1 = much to short to 4 = too long)	2.29	.70	.12	-.01	-.01	.04	.05
Number of participants in the inservice workshop	20.25	8.76	-.08	-.12	-.09	.10	-.04
Where participants came from (coded 1 = my school to 5 = different schools in different districts)	2.58	1.37	-.11	-.15	-.03	-.05	-.08

Workshop Features	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Number of consultants involved in the inservice	2.06	1.78	-.14	-.05	.01	-.16	-.10
Where the consultants came from (percentage response indicated)							
Participants' own school	16.6%		.04	.08	.16	.01	-.01
Elsewhere in the same system	18.9%		.06	.17	-.00	.00	.01
Another school system	27.7%		.00	.13	.11	-.01	-.05
A college or university	30.9%		-.15	-.18	-.04	-.05	.06
A public agency or collaboration	11.7%		-.03	.02	-.05	-.01	-.05
An independent consulting group	10.3%		.01	-.07	-.08	-.15	-.06
Business or industry	8.9%		-.03	-.06	-.10	-.03	-.15

Table 7 (continued)

Workshop Features	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Extent to which consultant's style matched participants' (coded 1 = not at all to 4 = a great deal	3.25	.77	.43	.34	.12	.12	.14
Overall effectiveness of the consultant (coded 1 = very ineffective to 4 = very effective)	3.68	1.09	.13	.12	.11	.04	-.02
Participant's rating of consultant's effectiveness with specific behaviors (coded 1 = very ineffective to 5 = highly effective)							
Relating to the participants	4.03	.95	.38	.35	.17	.18	.18
Understanding teachers' concerns	4.04	.96	.36	.37	.12	.10	.10

Table 7 (continued)

Workshop Features	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Encouraging participation	4.10	.89	.30	.34	.12	.12	.03
Stimulating interest in the topic(s)	3.94	.94	.36	.38	.14	.15	.11
Making good use of your time together	3.81	.99	.43	.40	.16	.17	.15
Demonstrating knowledge of the topic(s)	4.42	.79	.34	.33	.09	.14	.05
Responding to participants' questions and concerns	4.24	.88	.37	.35	.12	.11	.06
Clearly explaining things	4.08	.90	.30	.32	.10	.12	.08
Using materials and resources	4.03	.91	.28	.31	.06	.14	.07
Completing the objectives of the workshop	4.04	.90	.42	.41	.20	.20	.10

Table 7 (continued)

Workshop Features	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Leading/directing discussions and interactions among participants	3.86	.90	.31	.35	.15	.12	.13
Providing participants with new information	4.12	.92	.41	.42	.12	.17	.07
Meeting participants' needs and expectations	3.81	1.00	.47	.46	.16	.22	.17

Table 7 (continued)

Workshop Features	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
The extent to which the consultant(s) used specific methods of instruction/ learning (coded from 0 = not at all to 3 = a great deal							
Any method too much	.19	.55	-.10	-.04	.01	-.10	-.06
Lecturing by the consultant(s)	2.47	.72	.00	-.16	.04	-.03	-.04
Doing written assignments	1.34	.96	.09	.12	-.01	.09	-.02
Reading information packages	1.71	.90	-.07	.14	.10	.08	.01
Discussions with other participants	2.25	.77	.12	.27	.12	.16	.11
Hands-on activities	2.11	.97	.21	.26	-.02	.12	.03

Table 7 (continued)

Workshop Features	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Developing activities, projects, or programs	1.89	1.02	.26	.31	.04	.21	.16
Viewing A.V. presentations or films	.78	.97	-.14	-.00	-.10	-.01	-.01
Participating in simulations or games	1.42	1.06	.02	.07	.04	.09	.09
Observing the instructor or others apply skills	1.48	1.05	.11	.19	.01	.11	-.03
Practicing the skills, techniques, or behaviors at the inservice sessions	1.74	1.09	.26	.30	.04	.23	.15
Applying the skills, techniques, or behaviors in your class(es)	1.65	1.04	.21	.29	.26	.28	.21
Having the instructor/ consultant assist you in applying skills, etc. with your own students/class(es)	1.13	1.10	.21	.25	.01	.19	.16

Workshop Features	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Viewing A.V. presentations or films	2.68	.57	-.06	.01	.03	.07	.02
Participating in simulations or games	3.05	.71	.03	.02	.01	.10	.04
Observing the instructor or others apply skills	3.11	.66	.12	.18	.06	.13	-.01
Practicing the skills, techniques, or behaviors at the inservice sessions	3.27	.69	.20	.22	.02	.15	.12
Applying the skills, techniques, or behaviors in your class(es)	3.25	.73	.24	.33	.23	.20	.17
Having the instructor/ consultant assist you in applying skills, etc. with your own students/ class(es)	2.94	.63	.11	.23	.06	.07	.02

Table 7 (continued)

Workshop Features	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Participants' rating of how theoretical or practical the inservice workshops were (coded 1 = very theoretical to 4 = very practical)							
The consultant's(s') lectures	3.12	.94	.33	.33	.18	.19	.06
Doing written assignments	3.23	.65	.26	.24	.09	.10	.03
Reading information packages, books, etc.	2.88	.84	.15	.27	.13	.10	.08
Discussions with other participants	3.35	.64	.10	.20	.18	.19	.08
Engaging in hands-on activities	3.51	.59	.25	.12	-.03	.07	.02
Developing activities, projects, or programs	3.26	.70	.33	.31	.08	.08	.12

Table 8

Intermediate Workshop Effects and Partial Correlations with Use/Impact

Workshop Features	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Participants' ratings of how much they learned about ... (coded 0 = nothing to 4 = a great deal)							
New subject matter or topics to teach	1.72	1.09	.28	.31	.06	.17	.07
New or varied teaching methods/technology	2.15	.96	.30	.45	.17	.31	.21
Motivating students to learn/achieve	1.92	.98	.29	.44	.26	.36	.36
Use of worksheets or learning exercises	1.37	1.04	.07	.32	.18	.22	.19
Dealing with disruptive students	.75	1.04	.04	.28	.31	.19	.20

$r > .10 = .05$ sig.

$r > .14 = .14$ sig.

Table 8 (continued)

Workshops Features	Mean	Standard Deviation	Overall Inservice Rating	Correlation with Inservice Outcomes: Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Working with special needs (Chapter 766) students	.97	1.10	.14	.19	.19	.06	.11
Social relationships among students	.90	1.03	.03	.28	.29	.18	.26
Working with gifted and talented students	1.07	1.12	.10	.28	.16	.17	.18
Career/vocational awareness for students	.69	.93	.12	.27	.15	.23	.12
Interracial attitudes or relationships	.29	.60	.05	.18	.17	.19	.17
Learning to better use community resources	.87	1.04	.06	.24	.16	.09	.07
Providing guidance and counseling to students	.72	.97	.08	.30	.23	.13	.26

Table 8 (continued)

Workshop Features	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Increasing your awareness of your own teaching style/behavior	1.64	1.12	.16	.30	.28	.22	.29
Improving staff communication and morale	.85	.99	.17	.29	.30	.23	.32

Table 8 (continued)

Workshop Features	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Participants' ratings of how much knowledge to be acquired from the following (coded 0 = none to 4 = a great deal)							
The consultant's(s') lectures	2.69	.95	.47	.48	.17	.22	.08
Doing written assignments	1.58	1.10	.34	.34	.10	.22	.14
Reading information packages, books, etc.	1.95	.92	.19	.45	.34	.30	.21
Discussions with other participants	2.29	.94	.22	.35	.16	.22	.24
Engaging in hands-on activities	[illegible]5	1.25	.33	.33	.06	.25	.17

Table 6 (continued)

Workshop Features	Mean	Standard Deviation	Overall Inservice Rating	Correlation with Inservice Outcomes: Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Developing activities, projects, or programs	1.97	1.25	.37	.41	.14	.28	.22
Viewing A.V. presentations or films	.87	.96	.01	.06	-.04	.11	.05
Participating in simulations or games	1.49	1.14	.16	.16	.08	.21	.15
Observing the instructor or others apply skills	1.86	1.16	.22	.29	.11	.22	.12
Practicing the skills, techniques, or behaviors at the inservice sessions	2.01	1.21	.39	.36	.09	.26	.19
Applying the skills, techniques, or behaviors in your class(es)	1.82	1.22	.25	.43	.48	.42	.30
Having the instructor/ consultant assist you in applying skills, etc. with your own student/class(es)	1.14	1.12	.32	.37	.21	.26	.28

Table 8 (continued)

Workshop Features	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Participants' ratings of the extent to which each of the following has contributed to their using the knowledge gained through the inservice (coded 0 = not at all to 4 = extraordinary amount)							
The inservice itself	2.70	.85	.37	.47	.24	.25	.17
Your interest in the topic	2.86	.79	.28	.27	.22	.11	.15
The needs of your students/ class(es)	2.67	.83	.14	.22	.24	.15	.21
Content/need of your position	2.22	.94	.11	.19	.18	.16	.24

Table 8 (continued)

Workshop Features	Mean	Standard Deviation	Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Support from your colleagues	1.62	.96	.16	.23	.20	.25	.26
Support from the administration	1.58	1.04	.17	.20	.10	.24	.28
Expectations of your supervisor or the administration	1.35	1.01	.09	.11	.09	.23	.32

Table 9

Multiple Correlations of Inservice Impacts

With Sets of Control and Independent Variables

Variables Entered in Equation	Multiple Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Control Variables					
Background Characteristics of Participants	.39	.37	.45**	.40*	.36
Professional/Psychological Traits of Participants	.54 **	.57**	.53**	.59**	.55**
School, District, and Community Characteristics	.36 *	.33*	.36*	.30	.39**
Background Characteristics and Professional/ Psychological Traits of Participants	.64**	.66**	.65**	.65**	.62*
All Control Variables Above	.70**	.71**	.69**	.68*	.70**

* < .01
** < .001

Table 9 (continued)

Variables Entered in Equation	Multiple Correlation with Inservice Outcomes: Overall Inservice Rating	Know. Acq.	Know. Applied	Impact on Work	Impact on Capabilities
Independent Variables					
School Climate	.37**	.32	.33	.39**	.33
Inservice Workshop Features	.79**	.80**	.66**	.63**	.61**
Intermediate Effects	.68**	.81**	.68**	.63**	.64**
All Control Variables and School Climate	.74**	.75**	.71	.71*	.76**
All Control Variables and Inservice Workshop Features	.88**	.89**	.82*	.82*	.82*
All Control Variables and Intermediate Effects	.84**	.89**	.82**	.81**	.81**
All Control Variables and School Climate and Inservice Workshop Features	.89**	.91**	.84**	.85*	.88**
All Control Variables and School Climate and Inservice Workshop Features and Intermediate Effects	.93**	.95**	.92**	.91*	.92**

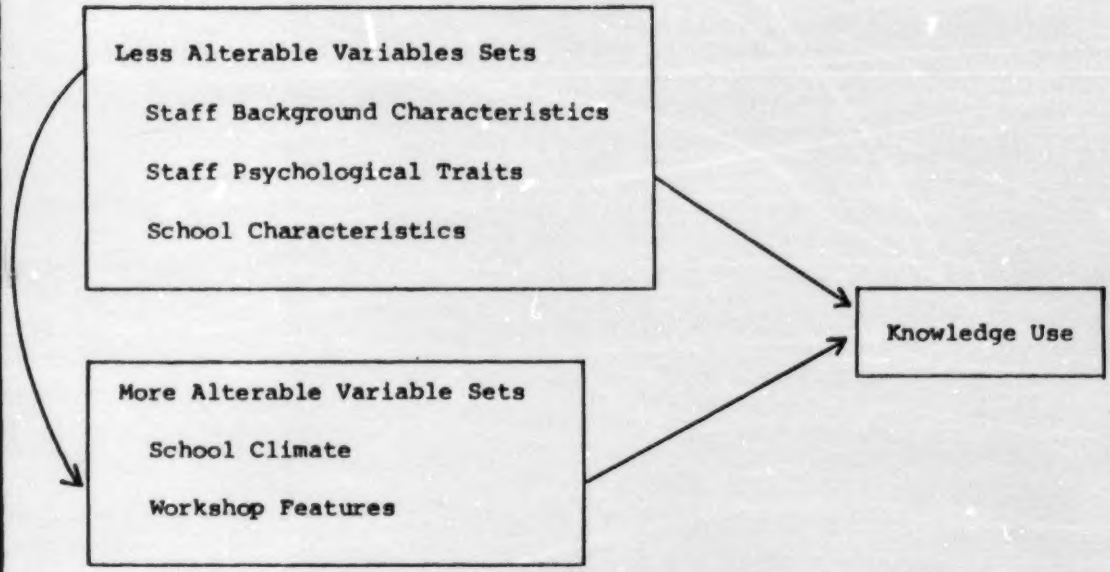

Figure 1: Path diagram of possible influences on knowledge utilization